



III. Selecting Content

Content selected for collective study by schools and districts must be supported by evidence that it can accomplish the goals set for student learning. A district should be confident that the content they choose to study has been found to improve student achievement. A process for selecting content will include:

- ❑ A review of research on curricular and instructional innovations with a history of success in the areas identified for student improvement;
- ❑ A review of current knowledge and practices in the district/school;
- ❑ Documentation that the practices are supported by scientifically-based research; and
- ❑ Alignment with the Iowa Teaching Standards.

A. Overview of the Component

The analysis of student achievement data and the setting of specific goals for improvement assist in narrowing the choices when selecting content for professional development.

Multiple choices are often available once a district/school has determined the area it needs to address. Before deciding on content, however, choices need to be screened. Is there research on the efficacy of the content for achieving a stated goal? Schools/districts may want to request external assistance from Area Educational Agencies, professional organizations, the Iowa Department of Education, universities or consultants when examining the claims made for various curriculums and instructional programs. Unfortunately, extreme claims that are supported by very little evidence abound in our field.

The Iowa Teaching Standards can be addressed when attending to the selection of content. After analyzing student achievement data, a district will next focus on what teachers can do to improve student achievement results. The opportunity to develop competence in content knowledge, the planning and preparation for instruction related to that content, and the opportunity to learn teaching strategies to meet multiple learning needs of students to meet those goals will enfold multiple Iowa Teaching Standards in the process. See Part 3, pages 5 and 6 for examples.

Once content and process are decided, a school/district is ready to select the training necessary in order to introduce the new content and to negotiate the process they want in order to learn the new material. For example, a school that has identified reading comprehension strategies as a critical student need will need to allow for sufficient instruction and demonstrations to ensure mastery of the new instructional strategies during the training sessions. Schools will also want to consider materials to be used in training settings and data collection around that content area.

This is possibly a good time to revisit the notion of simultaneity in the Iowa Professional Development Model. School A may decide that it needs additional information on assessments available to them for studying the impact of their planned literacy program on student learning. They may decide to seek professional development assistance in this area. School B, on the other hand, may have identified reading as a critical student need, but be concerned with student management

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issues as well. School B may decide to seek professional development that will help them learn instructional strategies that not only address literacy but are highly engaging for students and thus increase on-task behavior. It is extremely important, when choosing professional development around a content area, to keep the focus on the classroom. A rule of thumb for allocating time to context, process, and content might well be an 80 percent allocation to content/process and 20 percent to context.

B. Selecting Content: Review of Scientifically Based Research

The No Child Left Behind Act (NCLB) has defined the term “scientifically based research” and has outlined criteria that are used for identifying scientifically based research.

The rationale provided below describes why it is important to select content that has a scientific research base. A district needs to feel confident that the content it selects for professional development meets the NCLB definition of scientifically based research, has been studied, and has shown to have an effect on improving student achievement.

When determining the level of quality of a scientifically based research article, the following standards have been used as a guide for the review of research articles in the state of Iowa. Based on the work of Campbell and Stanley (1963), the reviews reflect an evaluation of the study itself rather than the strategy or program it describes.

The following information and process can be used by a district to review the research related to the content it is considering for implementation as part of its professional development.

Rationale for Using a Scientific Research Base

(from NCREL Learning Point, Spring 2002)

The focus on improving teacher effectiveness and raising student achievement through the use of scientifically based research (SBR) is fundamental to the successful implementation of the No Child Left Behind (NCLB) Act. The law requires knowledge and application of scientifically based research in the curricular areas of reading, mathematics and science, instructional methods and strategies, and professional development.

NCLB requires educators to be good consumers of SBR in specific areas that Congress believes would lead to improved student achievement if they were fully and accurately implemented. Being a good consumer of SBR practices and programs requires the district to do the following:

- ☐ Determine the relationship to data collected to determine the identified need.
- ☐ Assess the return on the investment.
- ☐ Determine the breadth of impact by determining if it [SBR] is serving a sufficient number of the targeted students.
- ☐ Assess immediate impact versus long-term results.
- ☐ Judge sustainability.

Through implementation of SBR practices and programs, educators will have greater confidence that what they are doing in the classroom will have the greatest likelihood of improving student performance. Part of the challenge will be to accept the research and be prepared to change policies and practices to reflect it. Educators must examine what is taught, when it is taught, and how it is taught.



Described below are the five criteria for rating the quality of research studies included on the Iowa Content Network.

Level 5—Gold Standard. For the purposes of the content network reviews, the No Child Left Behind criteria for quality research represents the “gold standard,” or best quality research. These criteria correspond to the top of the pyramid. Research designs most likely to produce “level 5” results are research designs that randomly assign subjects to treatment and control groups. They also provide control for most threats to internal validity and yield findings that generate the greatest confidence in student effect.

Level 4—Strong Evidence. Research designs most likely to produce “level 4” results do not randomly assign subjects to treatment and control groups, however other design elements control many of the threats to internal validity.

Level 3—Promising Studies. Research can be classified as “promising” under certain conditions. First, if a research design is weak but findings have been consistent across multiple replications, the treatment under study can be said to have promise. Second, if single strategies that have been studied under true experimental conditions are combined with multiple strategies, practices, and routines and the composite then studied with a weaker design with positive results, the findings can be classified as promising.

Level 2—Marginal. One-time case studies clearly fit into the marginal category. Many of the classroom experiments conducted by individual teachers in their classrooms and reported in popular, but non-peer reviewed, journals fit this classification. This is not to suggest that such reports are worthless, but rather that they fail to control for any of the competing hypotheses that might account for changes in the dependent variable.

Level 1—No Empirical Evidence. Two types of reports of successful innovations are common in the educational literature on curriculum and instruction, neither of which provides credible evidence that an innovation would consistently result in benefits to students:

❑ **“Advocacy” Writing**

The first is “advocacy” writing—articles that passionately espouse specific curriculum content or an approach to teaching. These articles often provide extensive rationales for why teachers and schools should adopt specific practices but provide no data to document the effects on students with whom these practices have been employed. In some cases, claims of significant growth are made for specific practices, again with no documentation.

❑ **Claiming Gains**

A second type of report frequently encountered in educational publications claims significant gains in student achievement for a district or state. At first glance, these reports appear to provide empirical evidence because they present test scores that show rising scores on a test over a period of years. Further reading of the report, however, reveals that the treatment was a high-stakes test or a system of rewards and sanctions for high and low performing schools.

We are left with no idea of what may have occurred differently in classrooms with students that might account for changes in student achievement.

Finally, testimonials and anecdotes frequently provided by publishers of educational materials to attest to the efficacy of their products do not meet the criteria for evidence that is commonly expected in scientifically based research.

Judging Scientifically Based Research (SBR) Content for PD: A Quick Guide

The following questions may be used when conducting a quick screening of a research study. When conducting a comprehensive review of a study, use *Tool 2content2*.

Quality

❑ **Did the study use control groups?**

(Control groups increase the confidence we have in findings)

❑ **“N” (Number of subjects in study) – Was the N sufficient to allow for generalization?**

(If a study draws conclusions from multiple teachers, schools, students, etc., we usually have greater confidence in the findings than if only one classroom and one teacher were studied.)

❑ **Were implementation data collected and reported?**

(If we know the extent to which an experimental treatment was implemented in classrooms with students, we have greater confidence in the findings.)

Effects

❑ **Did experimental students learn more than control students?**

❑ **What was the magnitude of effects?**

C. Terms Used When Making Decisions about Content

Program

A “program” is a compilation of strategies, practices and routines which are implemented as a whole. Exact proportions of various strategies, practices and routines are often specified in an “ideal” implementation of the program. Examples of Programs include:

- ❑ **Success for All.**
Success for All is an elementary reading program, which specifies strategies for teaching phonics and for one-on-one tutoring and practices such as grouping for instruction. In addition, staff development content and process, assessment procedures, and the monitoring of implementation are spelled out in detail.
- ❑ **Cognitive Tutors for Algebra and Geometry.**
These secondary math programs specify cooperative strategies for use in teacher-directed classroom instruction, specialized software programs for individualized instruction of students, assessment instruments, proportions of time students are to be in teacher directed instruction and computer-assisted instruction and staff development for teachers.

Strategy or Model

A “strategy” or “model” is an approach to instruction designed around a theoretical base of how students learn. A strategy or model of instruction combines a series of skills and practices in a specific sequence. Examples of strategies/models include:

- ❑ **Inductive Thinking Model**
The Inductive Thinking model is based on a theory of human information processing, namely that the examination of data, the classification of data based on observed similarities and the forming of generalizations based on multiple observations is a natural human activity and the foundation of all higher order thinking operations. The model has been applied to the design of curriculums in mathematics and science and to instructional objectives in reading, science, social studies and mathematics. Typically, the sequence of events in an inductive thinking model includes: 1) The teacher presents a data set; 2) students study items in a data set, identifying critical attributes of items; 3) students classify items in data set by common attributes; 4) students name categories; 5) students examine relationships between and among categories; 6) students form generalizations and apply to problem-solving situations.
- ❑ **Link-Word Mnemonic Strategy**
The Link-Word Mnemonic strategy is based on theories of information storage and retrieval developed by cognitive psychologists. Major applications of this theory in schools are reported in the research by Pressley and Levin. The sequence of teaching skills in this strategy include: Planning -- 1) identify material to be learned; 2) develop link words corresponding with key concepts in material to be learned; 3) illustrate (pictorially) relationships between link words and materials to be learned. Instruction – 1) present material to be learned; 2) introduce link words and have students rehearse; 3) explain illustration and have students rehearse the connections between link words and key concepts.

Practices/Routines/Skills

Practices, routines, and skills are discrete behaviors and procedures employed by teachers during the course of planning, organizing for, and conducting instruction. Examples include:

- ❑ **Practices**
Examples of practices include grouping students by ability for instruction, grouping students for cooperative learning tasks, and the assigning and checking of homework.
- ❑ **Routines**
Examples of routines include rules for student behavior and consequences for violations of classroom rules, order of instructional activities during a period or school day, make-up of missed work when students are absent, etc.
- ❑ **Skills**
For teachers, examples of skills include the ability to ask questions of varying cognitive complexity and the ability to appropriately reinforce students for desired behavior;
For students, examples of skills include the ability to locate a specific word in the dictionary or textbook glossary or the ability to identify structural components of words (e.g., prefixes, suffixes).

D. Applying the Model's Operating Principles – Selecting Content

The Model's Operating Principles describe actions and priorities essential to supporting the selection of content. Attention to these Operating Principles occurs as needed throughout the cycle of professional development.

Operating Principles

- ✓ Focus on Curriculum, Instruction and Assessment
- ✓ Participative Decision-making (School & District)
 - ✓ Leadership
 - ✓ Simultaneity

Note the areas that align with the Iowa Teaching Standards.

Actions Associated with Three Operating Principles

The actions listed below are examples of how three of the four Operating Principles may be applied to support the selection of content:

Focus on Curriculum, Instruction And Assessment

- ❑ The content selected for professional development is focused on instruction. The full faculty, administrators, board members, and community members are knowledgeable about what the focus is, the rationale for its selection, and why it is critical to aim at instruction.
- ❑ Careful review of research studies has provided evidence that the instructional practice selected for professional development has been proven to be effective. The studies reviewed document student achievement results in settings where the practice was implemented with students similar to our population.
- ❑ Deliberate effort has been made to ensure that the content selected aligns with the district standards and benchmarks.
- ❑ The assessments being conducted measure the acquisition of skills/behaviors that are the focus of the staff development. The assessments are sensitive enough to show gains that are the result of students experiencing the teachers' implementation of what is being studied in professional development.

Participative Decision Making

- ❑ Teachers and administrators are involved in considering and studying the various options being considered for potential professional development offerings. Teachers participate in the study of the research base prior to giving input on the practices/strategies to be implemented.
- ❑ The decision making process includes teachers in the study and dialogue about which strategies have the greatest potential to meet the needs of students and whether or not the studies meet criteria for being high quality research.
- ❑ Iowa Teaching Standards 1 & 7 & 8.

Leadership

- ❑ Leaders are able to clearly describe the content that is the focus of professional development and are able to explain the rationale for selecting this content. The rationale includes an explanation of the data that provides the direction for the professional development initiative.
- ❑ Leaders pay careful attention to the work of studying data, understanding the students' needs, and being discerning about the research base to ensure that teachers are well informed about the rationale for choosing specific content. This increases the likelihood of implementation.

- ❑ It is a leader's responsibility to keep the criteria for research base content central in the making decisions about staff development content.
- ❑ Leaders have identified someone familiar with the Iowa Professional Development model to help the district and buildings with the design, implementation and evaluation of professional development. Leaders are accessible to the person(s) assuming this role and work collaboratively with this individual or individuals to routinely work with data, study implementation and structure collaborative processes to support the faculty's learning.
- ❑ Iowa Teaching Standards 1, 3, 5, 7, 8

Simultaneity

- ❑ There may be issues pertaining to context and process that require attention and time. These variables are not ignored but the greatest percentage of the district's time and resources remain focused on the content. The district practices the rule-of-thumb of applying approximately 80% of their professional development resources and time on content, and about 20% on factors pertaining to context and process.

Common Pitfalls

- ❑ When leaders confuse the concept of buy-in with voting on an initiative, they abdicate their responsibility to ensure that student need and powerful, research based remedies are aligned.
- ❑ At the point of choosing content, leaders often dissipate their focus by allowing variables other than student learning goals to guide content decisions.
- ❑ Leaders do not provide adequate time for working with external experts(s). When the external expert is available to provide technical assistance and support, the principal/administrative leader is busy attending to other responsibilities and does not take advantage of an important resource.

E. Steps to Consider – Selecting Content

- ❑ **Become familiar with how to use scientifically based research and the Iowa Content Networks**
 - Review the rationale for selecting practices that are supported by scientifically based research (SBR) and study the 5 levels used by the Content Network
 - Read “A Reader’s Guide to Scientifically Based Research” by Robert Slavin and complete the accompanying Discussion Guide
 - Engage in the activity related to Scientifically Based Research.
 - Locate content area research by engaging in the Iowa Content Network Awareness Activity.

- ❑ **To find a strategy, a set of strategies or a model that supports your professional development target seek the support of a content expert.** (This could be your provider, someone your provider recommends, an AEA consultant, etc.)

- ❑ **Follow a process for reviewing the scientific literature base.**
 - Work with content expert to find out what SBR content is currently available from AEA or other sources that will address the student needs established in the professional development target.
 - For content that is readily available, review research to see if the setting and population served are similar to the local district context. Consider the training and supports provided to determine whether this effort can be replicated locally.
 - If no SBR content is available, review the Iowa Content Network and other sources to identify studies that describe practices that your district may want to investigate.
 - The content expert or provider assists the professional development leadership team in selecting strategies to consider by facilitating the process of sorting studies, reviewing the characteristics of the study and findings, prioritizing options, and collecting additional information. See examples of processes.

- ❑ **Articulate how this content addresses the related Iowa Teaching Standards and criteria.** See pp for an example of how the Iowa Teaching Standards may be aligned with professional development content.

- ❑ **Once content is selected document the decisions and disseminate to appropriate target audiences**
 - List the content selected in the District Career Development Plan

In Part 4, Tools and Resources

2(content).1. Slavin, R. (2003). *A reader’s guide to scientifically based research*.
 2(content).2. Scientifically Based Research Activity, with Sample of a Completed Documentation Form and a Discussion Guide
 2(content).3. How to Use the Content Network Website

2(content).4. Examples of Processes to Follow to Select Content

See Content Network Web site for examples of processes:
<http://www.state.ia.us/educate/cesese/tqt/tc/prodev/main.html>

Part 3, Page 5 & 6, - Iowa Teaching Standards

3(stan).1. Worksheet for Drafting the District Career Development Plan

- Facilitate opportunities for faculty to process the link between student needs and the district/building goal(s), the PD target, and the content selected.
- Share information about the content selected with the school board and the community.
- **Review the Operating Principles for Selecting Content and complete the Operating Principles to identify district actions needed to ensure that this component of the Iowa Professional Development Model is fully supported.**

2(content).5. Operating Principles for Selecting Content